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THE JOURNAL OF PHILOSOPHY

ON THE NATURE AND THE OBSERVABILITY OF THE CAUSAL RELATION[1]

THE aim of this paper is to set forth two related theses. The first is that the correct definition of the causal relation is to be framed in terms of one single case of sequence, and that constancy of conjunction is therefore no part of it, but merely, under certain conditions, a corollary of the presence of the causal relation. The second thesis is that the causal relation, when correctly defined, is as directly observable as many other facts, and that the alleged mysteriousness of the causal tie is therefore a myth due only to a mistaken notion of what a tie is.

I. *Meaning of "a Correct Definition."*—The problem of giving a "correct" definition of the causal relation is that of making analytically explicit the meaning which the term "cause" has in actual concrete phrases that our language intuition acknowledges as proper and typical cases of its use. For obviously it is one thing to "know what cause means" in the cheap sense of being able to understand intuitively such an assertion as that the Santa Barbara earthquake caused the collapse of numberless chimneys; and it is another and a much more difficult and rarer thing to "know what cause means" in the sense of being able to give a correct definition of it. To say that a definition of it is correct means that that definition can be substituted for the word "cause" in any such assertion as the above, in which the word occurs, *without in the least changing the meaning which the assertion is felt to have.* Any ventured definition of such a philosophical term as cause is thus capable of being correct or incorrect in strictly the same sense as that in which a scientific hypothesis is so, *viz.*, either it fits the facts or it does not. The only difference is that in the case of scientific hypotheses the facts are perceptual objects and their relations, while in the case of philosophical hypotheses the facts are the intuited meanings of actual phrases in which the word to be defined occurs. The great inductive method of hypothesis-deduction-verification is thus no less that of philosophy than that of science.

[1] Read before the Meeting of the Eastern Division of the American Philosophical Association, at Northampton, Mass., December, 1925.

II. *Two Preliminary Remarks.*—Before attempting to formulate a definition of the term "cause," attention must briefly be called to two essential preliminary points.[2]

1. The first is that nothing can, in strict propriety, ever be spoken of as a cause or an effect, except an *event.* And by an event is to be understood either a change or an absence of change (whether qualitative or relational) of an object.[3] On the other hand, objects themselves (in the sense of substances, *e.g.,* gold; or things, *e.g.,* a tree) never can properly be spoken of as causes or effects,[4] but only as agents or patients, as components or compounds, as parts or wholes. These relations, although closely allied to the causal relation, are nevertheless distinct from it, and can not be discussed here.

2. The second point to be borne in mind is that when the term "causal connection" is used, any one of four distinct objective relations may actually be meant, namely, objectively sufficient to, necessary to, necessitated by, contingent upon. And to these four relations correspond respectively the four functional terms, cause, condition, effect, resultant. So that, more explicitly, if a given particular event is regarded as having been *sufficient to* the occurrence of another, it is said to have been its *cause*; if regarded as having been *necessary to* the occurrence of another, it is said to have been a *condition of* it; if regarded as having been *necessitated by* the occurrence of another, it is said to have been its *effect*; and if regarded as having been *contingent upon* the occurrence of another, it is said to have been a *resultant* of that other. Much confusion has resulted in discussions of causality from the failure to keep these four relations at all times clearly distinguished, Mill, indeed, pushing perversity to the point of convincing himself and some of his readers that there was no sound basis for a distinction between cause and condition. But it is, on the contrary, essential to remember that to be sufficient is one thing, to be necessary another thing, and to be *both* sufficient and necessary (which is what Mill's definition would make cause mean) yet a third thing.

Of the four relations, cause, condition, effect, resultant, which a given particular event may have to another with which it is connected, we shall have space here to discuss only the first, namely, cause. And we shall, moreover, confine ourselves to cases—much the

[2] In a monograph on causation published by the writer some time ago, these two points are argued at some length. See *Causation and the Types of Necessity,* Univ. of Washington Press, 1924, pp. 52 ff.

[3] More technically, an event can be defined as either a change or an absence of change in the relation of an object to either an intensive or an extensive standard of reference, during a specified time interval.

[4] Cf. Schopenhauer, *The Fourfold Root of the Principle of Sufficient Reason,* Trans. Hillebrand, pp. 38 ff.; and Wundt, *Logik,* Third Ed., Vol. I., p. 586.

more frequent—where the events contemplated are changes, rather than absences of change.

III. *Definition of Cause.*—Taking it as an admitted fact of the language that if the occurrence of a particular change sufficed to the occurrence of a given other it is then said to have caused that other, the all-important question now arises how such sufficing is to be defined. I suggest that the correct definition of it, framed in terms of a hypothetical situation, is as follows:

Considering two changes, C and K (which may be either of the same or of different objects), the change C is said to have been sufficient to, *i.e.*, to have caused, the change K, if:

1. The change C occurred during a time and through a space terminating at the instant I at the surface S.[5]

2. The change K occurred during a time and through a space beginning at the instant I at the surface S.

3. No change other than C occurred during the time and through the space of C, and no change other than K during the time and through the space of K.

More roughly, but in briefer and more easily intuited terms, we may say that *the cause of the particular change K was such particular change C as alone occurred in the immediate environment of K immediately before.*

IV. *Some Bearings of the Definition.*—A number of important points may be noted in connection with the above definition of cause.

1. The first is that it presents the causal relation as involving not two terms only, but essentially three terms, namely, (*a*) the environment of an object, (*b*) some change in that environment, (*c*) the resulting change in the object. As soon as it is clearly realized that the expression "the cause of an event" thus has any meaning at all only in terms of some definite environment, either concretely given or abstractly specified, Mill's contention that the distinction between cause and conditions is arbitrary and capricious, is seen to be absurd. To take up the environment into the "cause," as Mill's definition of cause [6] tries to do, is impossible because the cause consists of a change in that environment. No event can be spoken of as the cause of anything, except relatively to certain conditions; and *vice versa*, as regards conditions.

2. The second remark for which the definition of cause above gives

[5] The limit of a change of a solid is obviously a surface, not a point.

[6] "The cause . . . is the sum total of the conditions, positive and negative taken together . . . which being realized, the consequent invariably follows" (*Syst. of Logic*, Bk. III., Ch. V., No. 3). This definition is obviously in flagrant contradiction with Mill's characterization of the cause as the single difference in the circumstances, in the canon of the "Method of Difference."

occasion concerns the immediate spatial and temporal contiguity of cause and effect. The alleged impossibility of such immediate contiguity is the chief ground upon which Mr. Russell has advocated the extrusion of the term "cause" from the philosophical vocabulary.[7] The difficulties raised by him, however, are easily disposed of if two things are kept in mind. The first is that the terms "a time" and "a place" are ambiguous. It is essential to distinguish clearly "a time" in the sense of an instant, *i.e.*, a *cut* of the time series, from "a time" in the sense of a *segment* of the time series, limited by two cuts. And similarly with regard to the space order, the cuts of it (*viz.*, points, lines, or surfaces according as one, two, or three dimensional space is considered) are to be carefully distinguished from the *parts* of space, which have such cuts as limits. The second thing to bear in mind is that an event (whether a change or an "unchange"[8]) can not be said to occur *at* a time (cut), but only *during* a time (segment); nor *at* a point (or other cut of space), but only *through* a space (between cuts). Thus, a change is essentially a process which has extent both in time and in space, and is therefore divisible; any division yielding segments of the process that are themselves extended in time and space and therefore further divisible, *ad infinitum*.[9] The immediate contiguity of cause and effect in space and time, specified in our definition, then means only that one identical space-time *cut* marks both the end of the cause process and the beginning of the effect process; the one extending up to, and the other from, that cut; the cut itself, however (by the very nature of a cut as distinguished from a segment), having no space-time dimension at all.[10] With cause and effect and their space-time relation[11] so conceived, there is no possibility that, as Mr. Russell contended, some other event should creep in between the cause and the effect

[7] *Proc. Arist. Soc.*, Vol. XIII., "On the Notion of Cause."

[8] The apt term "unchange" is borrowed from Dr. Charles Mercier's book, *Causation and Belief*.

[9] A stage might, however, conceivably be reached, at which the parts obtained by the division of a change, would, *in terms of the particular test of changing used at the previous stages of division*, be themselves not changes, but unchanges (though, of course, none the less extended in time and space and therefore divisible). That is, the assertion that something changes, or, equally, does not change, remains ambiguous so long as some definite test of such change has not been specified as standard. Thus the assertion might be true in terms of one test and false in terms of another. *Cf.* "A Liberalistic View of Truth," by the writer, in the *Philos. Review* for November, 1925.

[10] In practice, no space-time dimension of a relevant order of magnitude. Clock ticks and graduation lines as used are never perfectly dimensionless.

[11] This view of the space-time relation of cause and effect, I was gratified to find, is also that set forth by Mr. Johnson in Vol. III. of his *Logic* (p. 74), which appeared at virtually the same time as the monograph on causation referred to above.

and thwart the production of the effect. Nor are we compelled, as he also contended, to trim down indefinitely the beginning part of the cause (and, *mutatis mutandis,* the end part of the effect) on the ground that the early part of the cause is not necessary to the effect so long as the end part of the cause occurs. For, once more, the cause means something which was sufficient, and not as the objection assumes something which was both sufficient and necessary, to the effect. Thus the space-time limit of the cause process at the outer end is as elastic as we please, and varies with the space-time scope of the particular description of the cause that we give in each concrete case. And the same is true of the outer end of the effect process.[12]

3. The third observation to be made on the definition of cause proposed is that it defines the cause of a particular event in terms of but a single occurrence of it, and thus in no way involves the supposition that it, or one like it, ever has occurred before or ever will again. The supposition of recurrence is thus wholly irrelevant to the meaning of cause; that supposition is relevant only to the meaning of law. And recurrence becomes related at all to causation only when a law is considered which happens to be a generalization of facts themselves individually causal to begin with. A general proposition concerning such facts is, indeed, a causal law, but it is not causal because general. It is general, *i.e.,* a law, only because it is about a class of resembling facts; and it is causal only because each of them already happens to be a causal fact individually and in its own right (instead of, as Hume would have it, by right of its co-membership with others in a class of pairs of successive events). The causal relation is essentially a relation between concrete individual events; and it is only so far as these events exhibit likeness to others, and can therefore be grouped with them into kinds, that it is possible to pass from individual causal facts to causal laws. On the other hand, in the case of laws obtained, not by experimentation and generalization of the result of it by abstraction, but in a purely statistical manner (the only manner directly relevant to Hume's notion of cause), it is only quite accidentally that the terms of such "constant conjunctions" as these laws describe stand one to the other

[12] It is interesting to note that the analysis of the space-time relation of cause and effect given above reveals an essential connection between the two notions of Change and of Causation. For, taking any given change process, by specifying a space-time cut of it, one splits it into a cause and an effect; and, on the other hand, taking any given cause and its effect, by abstracting from the particular space-time cut in terms of which as common limit the cause process is distinguished from the effect process, one obtains a process describable as one change. This calls to mind Kant's very inadequately argued contention in the Second Analogy, that (objective) change involves the category of causation.

as cause and effect. Much more frequently they are not such and are not regarded as such; and uniformity of succession thus constitutes not at all the meaning of the cause-effect relation, but at the most only evidence of the existence of some causal connection, perhaps very remote and indirect, *and yet to be discovered,* between the terms of the succession. A causal connection explains the regularity of the succession, but is not constituted by such regularity, which is but a corollary of the causal connection whenever the cause or the chain of causes happens to occur again. Hume himself, indeed, on the very page of the *Inquiry* where he gives his definition of cause (in terms of regularity of succession), says that that definition is "drawn from circumstances foreign to the cause"; "from something extraneous and foreign to it." And it was to avoid having to say, as Hume's definition would require, that day was the cause of night and night the cause of day, that Mill added, in his own definition, the requirement of "unconditionality" to that of invariability of sequence—without perceiving, however, that as soon as "unconditionality" was introduced, invariability became superfluous. For if the effect "unconditionally" follows from the cause, *i.e.,* is *necessitated by* the cause, then, obviously, as often as the cause recurs the effect *must* recur also. But this so-called unconditionality of an effect, upon a cause, *i.e.,* the necessitation of the effect by the cause, was the very thing which Mill had declared was not revealed by mere observed regularity of sequence. It must then be ascertained by the experimental "method of difference," *i.e.,* by the analytical observation of an individual case. But Mill never sees that this amounts to *defining* cause in terms of single difference in one experiment. Hume refers to single difference as a "Rule" by which to judge of causes and effects,[13] and Mill, borrowing the blunder, throughout persists in regarding single difference as a "method" for the roundabout ascertainment of something other than itself, *viz.,* of invariable sequence; instead of, and properly, regarding it as the very definition of cause. This is perhaps in part explicable by the fact that Mill never clearly perceived the difference between experimentation and generalization[14] by abstraction; he never was adequately conscious that it is one thing to introduce a single difference, *i.e.,* make a single change, in a given concrete set of circumstances, and note what happens; and a very different thing to compare two such experiments, one of which yielded a certain effect and the other failed to, and note what single difference there was between the single antecedent changes introduced in the two cases into the (same) set of circumstances.

[13] *Treatise,* Bk. I., Part III., No. 15.

[14] This has been noted by Jevons, *Pure Logic and Other Minor Works,* p. 251.

4. As a last remark upon the definition of cause in terms of a single case given above, it may be noted that it is the only one which is faithful to the manner in which the word "cause" is actually used by every person whose English has not been contaminated by Hume. As Mr. Russell himself notes, we can not without "intolerable circumlocution"[15] avoid speaking of one particular event as causing another particular event. And, I ask, why seek to avoid it, when just that is so plainly what we do mean? When any philosophically pure-minded person sees a brick strike a window and the window break, he judges that the impact of the brick was the cause of the breaking, *because* he believes that impact to have been the only change which took place then in the immediate environment of the window. He may, indeed, have been mistaken, and acknowledge that he was mistaken, in believing that impact to have been the only change in the environment. But if so he will nevertheless maintain that *if* it had been the only change, it would have been the cause. That is, he will stand by the definition of cause, and admit merely that what he perceived was not a true case of what he meant and still means by cause.

V. *The Observability of the Causal Relation.*—This now brings us to the second of the two theses mentioned at the beginning of this paper, namely, that concerning the observability of the causal relation. Hume's view that no connection between a cause and its effect is objectively observable would be correct only under the assumption that a "connection" is an entity of the same sort as the terms themselves between which it holds, that is, for Hume and his followers, a sense impression. For it is true that neither a color, nor an odor, nor a sound, nor a taste, nor any other sense impression, "connecting" the cause and the effect, is observable between them. Indeed, we must even add that if a sense impression were present between those said to constitute the cause and the effect, it would, from its very nature as a sense impression, be quite incapable of doing any connecting and would itself but constitute one more of the entities to be connected. This is true in particular of the feeling of expectation which Hume would have us believe is what the words "necessary connection" ultimately denote.

But there is fortunately no need for us to attempt to persuade ourselves that whenever people during the past centuries have talked of objective connection they thus have not really meant it at all. For the fact is that a causal connection is not a sensation at all, but a relation. The nature of that relation has already been minutely described above. It is, as we have seen, a relation which has individual concrete events for its terms; and, as analyzed by us, its pres-

[15] *Scientific Method in Philosophy*, p. 220.

ence among such events is to be observed every day. We observe it whenever we perceive that a certain change is the *only* one to have taken place immediately before, in the immediate environment of another.

But at this point it becomes necessary for us to consider two apparently weighty objections, which can be urged against the observability of what we have defined as constituting the causal relation. One of them is that we are never theoretically certain that we have observed as much as the definition demands; and the other is that, on the other hand, we are often certain that the cause is less than the definition would permit us so to call. Each of these difficulties in turn must be carefully examined.

1. The first of them, more explicitly stated, is this: We never can be certain that the change which we have observed in any given case was, as the definition requires, the *only* change that occurred then and there, and therefore it is always possible that a part of the cause has escaped us. In considering this objection, it is, of course, well to bear in mind that our definition specifies contiguity in space as well as in time of the cause to the effect, and in addition permits us to set the *outer* space-time limit of the environment to be observed as near to the effect as we find convenient; so that the definition relieves us of the sometimes alleged obligation to observe the antecedent change of the entire universe. But even confining our observation to as externally limited a region of the contiguous space-time as we please, the possibility still always remains that we have not in a given case observed the whole of the change in that environment.

This predicament, it must frankly be admitted, is inescapable. But we must state also, and with all possible emphasis, that it is not peculiar to the definition of causation proposed.[16] Nor, indeed, is it, in its essence, peculiar even to definitions of cause. Rather it is a predicament involved *in every attempt to observe a universal negative.* Thus, even such an assertion as that "this man is Mr. Soandso" is theoretically always precarious in exactly the same manner, for there is no theoretically absolute guarantee that the man before us is not some one else, who merely happens to be exactly like Mr. Soandso in the particular respects to which our observation has turned.[17] The predicament mentioned, thus, does not constitute the

[16] The corresponding difficulty with the Humian definition of cause as regular sequence is that experience never can guarantee that exceptions to the regularity of the sequence have not escaped our observation; or, more generally, that the sample of the character of the sequence, which we have observed, is a "fair sample."

[17] This difficulty becomes particularly acute when the opportunity for observation is limited, as, *e.g.*, in establishing one's identity over the telephone; or,

least evidence against the correctness of our definition of cause, for the very same difficulty would arise no matter what other definition were proposed.

All that we are then called upon to do in connection with that predicament is, first, to call attention to its existence and nature, and sagely class it as a fact illustrating the platitude that life is a precarious business in many ways; and, second, to state explicitly the proviso subject to which cases of causation as defined are observable. This proviso is obviously that *the change which we observed in the antecedently contiguous space-time was really the only change which occurred in it.* That is not something which we know to be true, but only something which we hope is true, and which for *practical* purposes we must suppose true; *i.e.*, it is a *postulate*—the first of those underlying the present theory of causation. There is, however, no doubt that when, as in the laboratory, we have a high degree of control over the environment, and good opportunity to observe what occurs in it at a given moment, we do make the assumption just stated.

2. The second of the difficulties which we have to examine is of a logical rather than of a practical nature. It arises from the fact that in the face of the definition of cause given, we can not without a contradiction refuse to take into the cause *any part* of the total change observed in the contiguous space-time environment of the effect; while, on the contrary, we very frequently in fact seem so to use the word "cause" as to do just that. Thus, at the instant a brick strikes a window pane, the pane is struck, perhaps, by the air waves due to the song of a canary near by. Yet we usually would say that the cause of the breakage was the impact of the brick, and that the impact of the air waves, although it was part of the prior total change in the contiguous space-time, was no part of the cause. This being the way in which the word "cause" actually is used, how, then, can a definition which forbids us to call the cause anything less than *the whole* of the prior change in the contiguous space-time be regarded as a correct analysis of the meaning which the term "cause" actually possesses?

The contradiction, however, is only apparent, and depends upon a confusion between two different questions, due in turn to a certain ambiguity in the expression "the cause of an event." The first of the two questions is, *what did cause, i.e., what did then and there suffice to, the occurrence of that concrete individual event?* The second question, on the other hand, is really a double question, for it assumes the answer to the first as already possessed, and goes on

again, in the endeavor of psychical researchers to check up the alleged identity of the "controls" of their mediums.

to ask, *which part of what did suffice would be left if we subtracted from what did suffice such portions of it as were unnecessary to such an effect?* This is a perfectly significant question, for to say "sufficient to" is one thing; and to say "no more than sufficient to" is another thing: a hundred-pound rock may well have been that which sufficed to the crushing of a worm, but it can not be said to have been no more than what would have sufficed, since the tenth part of it would also have been enough. The second and double question, moreover, is usually that which we mean to ask when we inquire concerning the cause of an event; but, as will appear directly, it is not, like the first, really an inquiry after the cause of one individual concrete event strictly as such. It is, on the contrary, an inquiry concerning *what is common to it and to the causes of certain other events of the same kind.* This much of a generalization, indeed, is indissolubly involved in the mere assigning of *a name* to the cause and to the effect perceived; although *it is not involved in the merely perceiving them.* This is an extremely important point, which constitutes the very key to the whole matter. That this is so will become fully evident if the significance of the second of the two questions above is more explicitly analyzed.

If we inquire what exactly is required to define the meaning of that (double) question, we find that at least *two* hypothetical cases are needed. For to say that in a given case a certain change *sufficed* to the occurrence of a given event, means, as we have seen, that no other change than it did occur in the prior contiguous space-time; and to say that a certain portion of that change was *unnecessary* means that in a case where that portion of the change did *not* occur—*which case therefore can not be the very identical case, but only a case that is otherwise similar*—an (other) event of the same sort as the effect considered nevertheless did result. But now the fact that at least two hypothetical cases are thus necessary to define the meaning of our second question above, implies that that question is wholly meaningless with regard to one single concrete event. It is a question not, like the first, concerning the cause of one single concrete event, but concerning what was, or would be, *common to the causes* of at least two such.

The apparent contradiction which we faced is therefore now disposed of, for if, by "the cause of an event," we really mean the cause of one individual concrete event, and not merely of some case of a sort of event, then we must include in our answer *the whole* of the antecedent change in the contiguous space-time. And if, on the other hand, our answer leaves out any part of that change (as it often does), then the only question to which it can be a correct an-

swer is one as to *what was common to the individual causes* of two or more individual events of a given sort. Thus, if we say that the impact of a brick was the cause of the breaking of the window, and that the song of the canary had no part in it, then the words "the breaking of the window" do not refer to an individual event considered in its full concreteness, but only to a *case-of-a-kind,* uniquely placed and dated indeed, but not qualitatively specified otherwise than by the characters that define its kind, *viz.,* "breaking of window." And it is solely owing to this that we can truly say that the song of the canary had nothing to do with it, for that means, then, nothing to do with what occurred *in so far as what occurred is viewed merely as a case of breakage of a window.* As already explained, to say that the song of the canary was unnecessary is not to say that it was not part of what did then and there suffice; it *is* to say only that in *another* case, otherwise similar, where the song did not occur, an effect of the *same sort, viz.,* breaking, nevertheless did occur.

The whole of our answer to the objection we have been discussing may, after all this detail, be summarized by saying that the expression "the cause of the breaking of this window" has two senses, one strict, and the other elliptical. In the strict sense, it means "the fully concrete individual event which caused all the concrete detail of this breaking of this window." In the elliptical (and indeed more practically interesting) sense, it means "that which the cause of this breaking of this window has in common with the individual causes of certain other individual events of the same sort."

VI. *The Generalization of Observed Causal Facts.*—It is, of course, to be acknowledged that, as the parenthesis in the last sentence suggests, we are interested in causes and effects primarily for practical purposes, and that for such purposes causal knowledge is of direct value only so far as it has been generalized. This means that the interest of strictly concrete individual facts of causation to us is chiefly the indirect one of constituting raw material for generalization. And this explains why we so naturally and so persistently confuse the question, what did cause one given concrete event, with the very different question, in what respects does that cause resemble the causes of certain other events of the same sort previously observed in similar environments. For it is from the answer to this second question that we learn, what in such environments is the most we must do to cause the occurrence of another event of the given sort. And evidently just that is the very practically valuable information that we desire ultimately to obtain. But although it is true that, as practical beings, we are not directly interested in con-

crete individual facts of causation, it is not true that there are no such facts; nor, as we have seen, is it true that generality or recurrence is any part of the meaning of cause.

To round out the outline of the theory of the causal relation which this paper sets forth, there remains only to state the two postulates which condition, respectively, the validity of the descriptions by names which we formulate to fit sets of individual causal facts, and the validity of the applications we make of such generalizing descriptions to new cases.

The postulate which conditions the correctness of any answer we venture to give to the problem of description, *viz.*, the problem in what respects the cause of a given concrete event resembles the causes of certain others of the same sort previously observed in similar environments,[18] is that *the respects of resemblance which we include in our answer* (through the name by which we describe the cause) *are really the only ones that there were.* This postulate, which may be called that of the *descriptibility* of our causal observations, is then the second postulate of our theory. The first, which it will be recalled was that no change that was not observed occurred in the prior contiguous space-time environment, may be called that of the *observability* of causal facts. And the third postulate, which we may term that of the *applicability* of our descriptions of our observations of causal facts to new cases, is that *the new case* (*or cases*) *differs from those on the basis of which the description was formulated not otherwise nor more widely than they differed among themselves.*

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THE REFORM OF THE LEIBNIZIAN MONADOLOGY[1]

Introduction

Leibniz's *Monadology* is a metaphysical treatise intended as a logical deduction of the nature of the reality which is the basis of physics. The treatise itself was practically unknown to Leibniz's contemporaries. It was written by him in 1714, two years before his death, in response to a request from one of his princely patrons, Prince Eugene of Savoy, and it was published in 1720, four years after his death. No classical work of the modern period approaches it in the fascination it has exercised on philosophers and in its in-

[18] Mill correctly states that "It is inherent in a description to be the statement of a resemblance, or resemblances," *Logic*, p. 452.

[1] Read before the meeting of the Pacific Division of the American Philosophical Association, Stanford University, November 27, 1925.

fluence in determining the direction of the development of philosophical doctrine. Condillac, Kant, and Hegel, to mention only three of the leaders of the modern historical development, were profoundly influenced by it. In our own generation Lotze, Renouvier, James Ward, and, among living philosophers, Gentile, have submitted it to detailed criticism and found the necessity in their own doctrines of definitely coming to terms with it. As a metaphysical system it is distinguished by its claim to have carried logical deduction to a complete, self-consistent, self-contained conclusion, and yet it has failed —and it fails—in the one essential requirement of a metaphysical system that it should give intellectual satisfaction. The ground on which it is generally condemned is not that the logical argument is defective, but that the principle is only finally reconciled by evoking in aid a *deux ex machina.*

Leibniz is one of the three intellectual leaders of the seventeenth century whose philosophical speculations were specifically determined by their interest in the physical problem. Descartes was primarily interested in mathematics, Newton in physics, Leibniz in metaphysics, but all three were exercised with the same problem, the nature of the reality of the external world which is the subject-matter of physics. This motive of Leibniz to discover the basis of physics is especially evident when we compare his metaphysics with the metaphysics of his great contemporary, Spinoza. From the purely philosophical standpoint there may seem little to choose between the monads of Leibniz and the modes of Spinoza. Both are attempts to solve the problem of the principle of individuality and the difference between them springs from the antithetical concepts of God to which they are relative. For Spinoza, God is universal substance; for Leibniz, God is the supreme artificer and architect of the universe. It is physics which gives its real import to the concept of the monads, the modes are indifferent to the scientific aspect of individuality. It has always been possible to adapt the Spinozistic concept either to a scientific materialism or to a spiritual mysticism. As a matter of fact, modern philosophical materialisms (*e.g.,* Santayana, Alexander) are, without exception, Spinozistic. Leibniz, on the other hand, is as insistent as the most thoroughgoing empiricist on the facts. The basis of physics is that the monads are the real atoms of nature. They are the simple substances, the things-in-themselves, which compose the external world of physical reality.

I

Leibniz's Metaphysics and Newton's Physics

Throughout the whole course of modern philosophy we find two divergent directions in which the attempt is made to interpret our

knowledge of the physical universe. Broadly speaking, we may designate the first as the way of realism, the second as the way of idealism. They lead to alternative and antithetical conceptions of the nature of the existence of the physical world.

According to the way of realism, there is assumed or postulated an existential distinction between mind and world. Knowledge is the relation between them, and in this relation the only thing distinctively mental is the act of knowing, the relation being between act of knowing and thing known. The activity in the act of knowing is affirmed to be purely an activity of direction. The attention is directed on an object and controlled, but the mind is purely passive in receiving revelation. The correlation of act and thing is affirmed to be complete. To the knowing act the independently existing reality is revealed. Realists insist on the simplicity and ultimate character of the knowing relation. It is sometimes represented as the simple relation of compresence, and if not actually identified with compresence, at least dependent on no more complicated situation than that of togetherness.

The criticism of this attractive theory, and the method of direct investigation to which it invites the scientific researcher, is that it involves an initial assumption. It can not start from existence—its own or another's; it can not validate the truth of the relation (knowledge) which it affirms.

The second way of approaching the problem of the physical world is the way of idealism, using that term in its widest comprehension. The physical world is not assumed to be self-existent and self-revealing. The idealist starts with the active subject of experience in its immediate self-affirmation. To every apperceptive or self-conscious subject existence is given immediately in the exercise of its activity. Existence is not identical with consciousness, but it is identical with conscious activity. It is the *cogito ergo sum*. Every such object already possesses its own external world in its own perceptions of its range of activity. That external world of its own perceptions becomes for each subject of experience a common world of general perception whenever there is intercourse between one subject and another, and the concept of a common world is the natural and necessary consequence of such intercourse. The theory is, therefore, that the idea of a physical world independent of each subject of experience and common to all is a function of intercourse and originates in the intercommunication of minds, and not *vice versa*.

I will now state the monadological theory in regard to the basis of physics in the form in which I am myself prepared to defend it. If the reals of the universe are monads, then there is no imaginable

way in which two monads can perceive the same perceptions. By this I mean not only that the perceptions of an identical object are different for every individual observer of that object by reason of perspective, but that there is no imaginable way in which the different perspectives of individual observers can be identified by reference to an identical object. Every one of us may easily satisfy himself on this point by simple reflection on experience. We only perceive our own perceptions and yet in our intercourse with one another we always refer our perceptions to a common world. This common world is not an independent universe acting on its own account. On the other hand, it is not illusion. The common world which is the subject-matter of intercourse is an ideal construction, and it arises in a metaphysical necessity. We can test that it is so. The same argument applies to it as that which is accepted by everyone in regard to the real world of physics. Physics does not deal with sense qualities, but with mathematical coördinations. The object of the physicist is the logical correlate of his measurements. The real world of physics is entirely ideal, not in the meaning that it is an arbitrary or fanciful construction, like the mythical and fictional esthetic constructions of the poet; it is the necessary outcome of the need to introduce order into experience. According to the monadological theory precisely the same is the genesis of the common world of discourse.

I do not say that this is explicit in the *Monadology* of Leibniz, but the principle is certainly there, and had the scientific world appreciated it the development of science would perhaps have been different. It so happened, however, that Leibniz in his lifetime was continually under a cloud of discredit and prejudice and could obtain no hearing in England. He was maligned as an intruder, a pushing adventurer, and a purloiner of others' ideas. His great learning and ability were recognized, indeed, but grudgingly. This unprofitable reflection, however, is perhaps best passed by.

There is in my view no *philosophical* alternative to what I have described as Leibniz's metaphysical basis of physics. There is, however, the possible alternative of a *modus operandi* and this has always had a powerful attraction to the lay mind. The alternative is to obey Newton's warning to physics to beware of metaphysics, to assume the truth and sufficiency of the data of common-sense experience, and to accept the common-sense objects and their setting or frame-work as the subject-matter of physics. Along this line the great scientific advance has moved and up to a point with extraordinary success. It is only when the dispensing with metaphysics is seen to involve the setting-up of a metaphysics, when the principle

hypotheses non fingo is itself seen to be an unconscious hypothesis, that the trouble comes. Newton's theory quite as much as Leibniz's is metaphysics.

II

What is Vital in the *Monadology*

The fundamental principle of the monadology is that the real is essentially active, that the active is the living, and therefore that only living activities are true units.

The monadology sets forth a logically consistent theory of the composition or constitution of a universe in which every constituent is an active subject of experience living its own life and in living its own life subserving the universal life, the life of the universe.

The monadology rejects as self-contradiction and inconsistency the idea that dead, inert, material atoms or mass-units are or can be constituents of a universe. There is nothing dead, nothing purely inert in the universe. To be absolutely dead is not to be. The Democritean concept of the atoms and the void is rejected because mathematically the atom is not a unit, but divisible to infinity, and physically it is not simple. The reals are monads, simple substances, self-centered subjects of experience, whose activity consists in perception, and whose perceptions are the apprehension of the whole universe, limited in the degree of clearness or obscurity, because the monads are created and therefore finite, and qualified by their individual standpoints.

The idea of such a universe of individual reals is illustrated by Leibniz in the relation of the mind to the body. Had he known the cell theory in its modern development, his illustration would have fitted the theme even more exactly. The mind in Leibniz's view is a simple substance, an indivisible unity which enters into compounds. The body is a composite. Yet every part of the body lives its own individual life, and the whole mind-body organization is a harmony of individual living active subjects.

The profound significance of this theory when we apply it to physics is that the external universe of physical reality can only be represented as a phenomenon of intercourse. There can be no interaction of the monads in the mode in which the atoms of the materialist philosophy had been conceived to interact, because in its very conception the monad is self-centered, a subject not an object, viewing the universe only as it is mirrored to it in its perception. That is to say, the activities of other monads are perceived by each monad, not as they are in themselves, but by each monad as the limitations of its own activity.

III

What is Defective and What is Dead in Leibniz's *Monadology*

Where Leibniz fails entirely is in any attempt to deduce the harmony of his system from the living principle, which is illustrated so excellently in the concept of the monad. There are monads—this to Leibniz is immediate self-evident fact—but there is no way of conceiving their genesis, no way of understanding how they could have come into existence, except by creation. The harmony, therefore, he concluded could only be ascribed to the wisdom of the creator. It is true, indeed, that this did not present itself to him as a difficulty. It caused him no embarrassment. On the contrary, he regarded the appeal to the omniscience of God as the special merit of his system and probably it was the origin and basis of his whole conception. He reverts to it on every occasion and always refers to it as "my new system of the preëstablished harmony."

From the modern standpoint, and generally for us, this doctrine is not only entirely unconvincing, but it stamps the whole conception with the mark of artificiality. Even Leibniz himself had difficulty, for he hesitates between two quite irreconcilable concepts of God. At one time he conceives God as first cause and omniscient artificer, exercising his infinite wisdom in choosing the best possible universe from among all the possibilities present to his mind before creation, following out in anticipatory thought the consequences of the monadic activities to their infinitesimal limits; at another time he conceives God as the Supreme monad, *Monas monadum,* ruler and upholder of a world of free spirits.

IV

The Scientific Significance of the Conception of the Monads

The atom of modern physics is neither the material space occupant of the old philosophy nor the indivisible extensionless unit or simple substance of Leibniz; it is an intellectual and purely mathematical construction. It can not be presented to sense perception notwithstanding that it can only be represented in sensuous imagery, because by its very conception it is the condition and not the conditionate of sensuous imagery. It is mathematically deduced and metaphysically constructed in order to interpret, in the form of a working model, the causal scheme of spectroscopically revealed phenomena, that is, of the phenomena which accompany the scientific analysis of light. Moreover, the atoms of modern physics are not conceived as ultimate elements or constituents of the material world. They are not simple, but compound. They are systems of opposite

forces in more or less stable equilibrium. For its ultimate, physics goes behind and beyond the atom to the field of force in which the atom is generated and to the unit electric charges into which it is finally resolved.

There are, however, two principles in modern science—not yet universally accepted principles, but each gaining continual confirmation from scientific research—which are in complete accord with the essential doctrine of the monadology, and are also in definite disaccord and unreconcilability with the Newtonian metaphysical, or antimetaphysical, basis of physics. What is of peculiar significance to philosophy is that these two principles enable us to reform the monadology in a way which it never entered the mind of Leibniz to conceive. The two principles are that of creative evolution in biology and that of relativity in physics. From the philosophical view-point the first is the more important; from the scientific view-point, the second.

The principle of creative evolution enables us to correct the intellectualism of Leibniz. The active force, in whatever way we conceive it, which has created the forms of living organization, is not conceived anthropomorphically as a personal designer or artificer and it can not be represented as existing apart from the living forms in which its activity is finding expression. It is true that to a certain extent we have to construct our concept of the *élan vital* in much the same way as that in which the physicist constructs the atom, deducing the form and working of the model from the expression of it in actual sense perception. What, however, the principle of creative evolution recognizes and insists upon is that intellect is a product or outcome of organic evolution. Intellect is not a privilege of enlightenment bestowed upon man either as a spiritual gift by a divine benefactor or as a chance endowment. It is the predominant mode of human activity, and the degree in which it supersedes other modes is characteristic of the species, but, like everything which evolution produces, it depends on selection and derives its efficiency from negation or deprivation, and it is tentative, destined to be superseded or discarded. The human intellect, according to the principle of creative evolution, is not absolute; it does not afford to man a vision or revelation of reality in its naked truth and disinterested existence. It is evolved for a practical end, it is relative to the range and action and vital needs of the human being. The principle of creative evolution enables us, therefore, to dismiss the divine artificer from Leibniz's scheme of the preëstablished harmony and to replace it with a harmony immanent in the very concept of evolution itself.

The second principle, the mathematical principle of relativity, introduces another and scientifically most important reform into the Leibnizian monadology. According to the *Monadology* the activity of the monads consists in their perception alone, and their harmony consists in the different degrees of clearness or confusedness of their perceptions, ranging from the completely adequate perceptions of the supreme monad to the almost total confusedness of the perceptions of the simple monad. According to the principle of relativity, every subject of experience coördinates the universe—that is, the aggregate of events which constitutes nature—from an individual view-point. This view-point is that of an observer attached to a system of reference. That system is for the observer attached to it at rest relatively to other systems moving uniformly or non-uniformly in relation to it. The axes of coördination, three for space and one for time, which the observer in a system employs, are, therefore, always equal and invariable in whatever direction they are turned, although to observers in systems moving relatively to it they will vary to the exact extent necessary to compensate the relative movement. According to this principle, therefore, the activity of the monads is not perception, if by perception we imply something absolute in the reality perceived. The primordial activity of the monads is not perceiving, but coördinating the universe. This coördinating the universe is a fundamental necessity of living activity. Action of any kind is clearly impossible in an uncoördinated universe. The principle of relativity is formulated to meet the fact, empirically established, that there is no absolute system of reference, no system in terms of which all movements can be standardized. This is the counterpart, expressed in physical terms, of the metaphysical doctrine of the monadology.

V

Is There an *Impasse* in the Initial Conception of a Monadic Universe?

Most philosophers who have given their attention to the theory of a monadic universe are scared by a certain *non possumus* which seems to confront us in the initial presentation of the doctrine. On what conceivable principle, they ask, can "windowless," non-interacting, monads be compounded? Have you not, they say, in characterizing your simple-substance unit negated the interrelatedness of the monads? Is not the monad by its definition a solipsistic activity; how, then, can it enter into and become part of a community? I have put this problem at the end and not at the beginning of my paper, because, if the argument I have advanced is accepted, the solu-

tion of the problem is anticipated. I stand by the solipsistic character of the monad. I make no attempt to qualify it or to explain it away. What I insist on is that the interrelatedness of the monads is ideal; that intercourse is a purely ideal relation; that ideal relations do not depend on interaction, are in no sense themselves interactions, and in fact are inconsistent with interaction. Interaction has a quite definite meaning, fixed, so far as the scientific use of the term is concerned, by Newton's third law of motion. Try, then, and imagine the monads interacting in obedience to such a law; imagine them clashing and rebounding like the atoms of Epicurus, and see if out of such interaction you can generate the kind of relatedness implied in intercourse. Intersubjective intercourse belongs to a totally different set of ideas and refers to a totally different class of relations to those which are defined mechanistically in the laws of motion. Monadic activity is self-expression and under no conditions can it be resolved into anything else. When, for example, I speak and am understood, or hear and understand, the whole activity is within me. It is not the assault on my sense organs of sights and sounds, but the expression of my intuition in images and concepts which sets up within me an interrelatedness with other minds and is the basis of intercommunication. This activity is self-originated, self-directed, and self-included. All change in a monad is internal. The sensations—the words and visual signs which I externalize—are in their aspect of externality, abstractions, schematic representations which I have devised for a practical purpose. It is I who spatialize and materialize them, not they which mould and transform me. They have no real status of their own, the work of externalization is mental and from within. It is intelligible that a subject of experience should externalize his consciousness. It is unintelligible that an alien and outside reality should generate an internal activity, and quite unmeaning when that activity is of the nature of intuition-expression.

Conclusion

The paradox of the monadology has always depended on the contrast of its principle and of its doctrine with that of the common-sense conception of the basis of scientific realism. At the present time science is in the throes of a crisis in physics. The progress of discovery and the results of scientific experiment, abundantly confirmed, have necessitated a complete revision of the whole metaphysical basis of physics and a reform of the whole setting and framework of the science. In common-sense experience mankind is called upon to adapt its mental attitude to a new view-point, a view-point strange and unfamiliar, demanding a mental effort as great or

even greater than that which was called for when mankind had to accustom itself to the thought of the antipodes. In this great task it is the privilege of philosophy to coöperate, and to this end I invite you to examine in the light of scientific theory the metaphysical doctrine of the *Monadology*.

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BOOK REVIEWS

Die Philosophie des Als Ob. HANS VAIHINGER. Popular Edition by Dr. Raymund Schmidt. Leipzig: Felix Meiner. 1923. Pp. iv + 366.

The Philosophy of "As If." H. VAIHINGER. Translated by C. K. Ogden. New York: Harcourt, Brace and Co. 1924. Pp. xlviii + 370.

The history of Vaihinger's work since its first appearance is scarcely less remarkable than that which preceded its publication. Whether subsequent events proved groundless the fears of the author or justified his delay as sagacity in waiting for an opportune moment, it would be difficult to say. But it is probable that neither his admirers nor less friendly critics anticipated the outcome of the publication of his volume in 1911. The comparatively few years which have passed since then were years which, for obvious reasons, might have failed to focus any considerable attention on a technical and intricate philosophical theory, however original or important. Yet in these years a noteworthy group in Germany has gathered around Vaihinger, comprising the nucleus of a philosophic "school." They publish in their "Annalen" an annual volume of great distinction, as well as issuing a journal of "Als Ob" philosophy. The issue of this magazine which appeared on the occasion of Vaihinger's seventieth anniversary showed not only the personal reverence with which his co-workers regard him, but also the breadth of his influence. His book itself has gone through six editions and, in abbreviated form, has appeared in a "Volksausgabe"—a fact which may have caused no less surprise to some of Vaihinger's readers than was expressed by a freshman whose toilsome progress through Mill's *Logic* was turned to consternation by the discovery that he had been using a "popular edition"! Finally, Vaihinger's work has achieved an international recognition denied to numerous continental authors, the plaudits of such contrasting readers as Dr. F. C. S. Schiller and Mr. Havelock Ellis (whose *Dance of Life* seems, to the present writer, to contain somewhat undiscriminating laudation) and, now, a defini-

tive English version in the impressive Library of Philosophy, Psychology and Scientific Method, whose editor thought the work worthy of translation by himself.

The appearance of the abbreviated edition in German and of the English rendering should serve not only to acquaint new readers with the "As-If" philosophy, but to provide an opportunity for considering Vaihinger's work in a new light. The popular edition shows forth the essential structure and fundamental scheme of the work with genuinely compelling clarity; the translation might make appropriate a more studious comparison of the *Philosophy of "As If"* with texts by English and American writers who seemed, to some readers at least, to have a comparable motivation and purpose. Be it said at once that this brief note does not aim to develop such a comparison, but only to suggest a number of lines, more or less important, along which a comparative study might profitably be made.

Before essaying such a series of suggestions I must, however, record a few observations about the two volumes which prompted these reflections. The German popular edition was published under the devoted editorship of Dr. Raymund Schmidt, who combined, in rare measure, the sympathy of a loyal disciple with the skill and insight of original scholarship. He has done his work with consummate patience, and his success is made manifest by the ease with which one can follow his abbreviated version and by the luminous manner in which central and fundamental issues have emerged. Especially worthy of comment is the retention of the historical studies which Vaihinger provided in an appendix to his work. A less scrupulous editor might well have been tempted to omit these sections in the interest of brevity, but Dr. Schmidt apparently held that they had value not only in showing the light which the "as-if" hypothesis may throw on certain motifs in the history of thought, but also in confirming the hypothesis itself.

Dr. C. K. Ogden's English edition gains greatly in value and interest by reason of the inclusion of a new autobiographical account by Vaihinger giving the psycho-genesis of his philosophy. The translation itself seems, to this reviewer, to leave something to be desired with respect to fluency and clarity of expression. Certain complicated ideas can not, perhaps, be adequately rendered except in equally complicated diction; but this would hardly apply to such instances as the following: Page 259—"Whereas, however, this consequence in the simple conditional sentence is, as we remarked, an unreal one (because the condition is also an unreal one), this unreal consequence is, nevertheless, taken as the standard for measuring a

reality." This is not an isolated instance. Dr. Ogden wisely determined to use the standard translation of *The History of Materialism* instead of attempting a new rendering; it seems regrettable that he did not follow the same procedure in the case of other works as well. Abbott's translations of Kant may not altogether satisfy the most particular; but—I choose an instance at random—when Dr. Ogden writes (page 289) "assuming . . . freedom only as posited merely in Idea by rational beings in regard to their actions" he might well have considered Abbott's work (*Kant's Theory of Ethics,* sixth edition, page 67): "assuming freedom merely as an idea which rational beings suppose in their actions." The latter seems a no less accurate and a far more intelligible version of Kant's own words: "Diesen Weg, die Freiheit nur, als von vernünftigen Wesen bei ihren Handlungen blos in der Idee zum Grunde gelegt . . . anzunehmen."

In all fairness it must be added that Vaihinger's own text bristles with complicated constructions and all the barbed barricades of technical jargon. Our obligation to Dr. Ogden for undertaking the labor of translating this important work is indeed great.

In venturing to suggest a variety of points of comparison between "The Philosophy of As If" and the works of American Pragmatists, one is confronted both by the rather hostile criticisms which certain writers of pragmatic persuasion brought against Vaihinger's book when it first appeared, and by his own dictum, that "though in practice they may find much in common" . . . "Fictionalism and Pragmatism are diametrically opposed in principle." Unfortunately he does not elucidate this "ipsedixitism" which occurs in a brief preface especially written for the English edition. Nor does he cast any further light on the relation, in those few instances cited in the studies of Kant in which he professes to find anticipations of pragmatist doctrine in Kantian thought. These few references have no bearing on the comparison which I am suggesting, and one is led to believe that Vaihinger's voluminous erudition does not include an acquaintance with latter-day pragmatic writings. The absence of any reference to the works of James, Dewey, *et al.,* is, of course, readily explained by the date at which *Die Philosophie des "Als-Ob"* was originally conceived. Unhappily, Vaihinger's advanced age and physical affliction would seem to preclude a remedy for this total neglect. It is all the more to be hoped that some other German of his school—perhaps Dr. Schmidt himself—will alter this situation. It might provide an excellent and natural first step in the direction of acquainting German students with the existence of intellectual pursuits in America other than those of suppressing the theory of

evolution and the consumption of beer. On the other hand, one may humbly express the hope that some American may take a step in the same direction—an international "comparing of notes." No one seems better qualified by temperament and tradition than Professor Dewey; and one can not but believe that more than one passage in *Experience and Nature* might appropriately have served as a basis for a recognition of intellectual kinship—as well as for a delineation of differences—between his own thought and that of Fictionalism.

Merely to indicate a few tendencies which suggest significant comparisons, one may refer to Vaihinger's anti-intellectualism, his voluntaristic psychology, his impatience with a "copy" theory of knowledge, and his substitution for it of a view that can hardly be better characterized than as "instrumentalism" (it is interesting to note the use of the identical figure of speech to which James recurred so often, the metaphor of the "cash value of ideas"), his definitely teleological interpretation of the thought process, and his illuminating analysis of the means-end relation (which largely parallel certain views expressed in Chapter III of *Experience and Nature*). It may not be wholly inconsequential that the British tradition of Hume and Mill occupies such a significant place in Vaihinger's background, as it did in that of James; nor that his relation to the tradition of German Idealism suggests, in part, that of Dr. Dewey himself. In fact, certain references to Lotze seem to recall the critical analysis of the early *Essays in Experimental Logic*.

Finally, and most important of all, may be mentioned the pervasive sense of the dependence of fruitful philosophic inquiry on the state of the natural sciences and, on the other hand, the profoundly moral preoccupation which is evident even in the midst of abstruse metaphysical speculations. Such interests may, to be sure, be regarded less as points of comparison and resemblance between two particular schools or authors than as characteristics of most philosophic minds of our day. Nor should a recognition of important points of difference be neglected. But there seems to be, here, an interesting and unconsidered instance of a significant community of thought.

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Le Freudisme Exposé et Critiqué. J. LAUMONIER. Paris: Félix Alcan. 1925. Pp. 172.

Psychoanalysis, like many faiths, has unhappily defended itself by using its own doctrines to explain away its opponents. Just as generations of the orthodox have damned the reasoning of heretics

because of its obvious infidelity, so the Freudians have accused their critics of harboring antagonistic complexes which have blinded them to the true glories of the new gospel. Psychoanalysis, in common with so many other schemes of salvation, must be believed in to be appreciated.

Naturally enough this unanswerably trivial argument has generated a counter-offensive from the camp of the unbelievers, who have been given aid and comfort by certain disgruntled Boswells lately come from Vienna. After the psychoanalysis of their opponents was bound to come the psychoanalysis by their opponents of the original analysts, and we have just begun to penetrate into the darker reaches of the domestic squabbles of the Master and his chronically rebellious disciples.[1] Just as in politics, such mutual truth-telling and abuse-swapping provides an unlovely spectacle, but is sometimes profitable to the spectators.

One of the least sympathetic of the recent attacks upon the Freudian doctrine, as might be deduced from its title, comes from Paris in the form of a short popular tract by a French physician, Dr. Laumonier. It consists of a compact exposition of the essentials of *le Freudisme* and a critical chapter which adds very little to the points already made by others. The introductory chapter is candorous enough to give away the intense chauvinistic bias which vitiates almost all French treatments of Austrian or German psychiatry. Too often the author goes beyond his customary tone of polite innuendo to attribute the sexual emphasis in Freud to the abysmal wickedness of Vienna and its perverts, only to conclude with the almost comical "I hope that in this present introduction I have put the reader in a position to judge impartially."

In the critique one encounters the stock protests against making a *métapsychologie* out of a therapeutic method; against preoccupation with sex; against abuse of the concept of the unconscious; against fixed symbolism; and against the analyst's control of what is supposed to be free association. Dr. Laumonier covers newer ground in his objections to the Freudian belief in infantile sexuality, which he bases upon Steinach's contention that psychosexuality is determined by internal secretions absent in infancy and childhood. Likewise the author's challenging of the permanency of certain alleged Freudian cures raises a valuable issue.

As a handbook intended to warn the French public against the dangers of embracing *le Freudisme* as a religion when they have the confessional already at hand, Dr. Laumonier's little volume does not pretend to deal with the vital philosophical questions raised by the

[1] *Cf.* Wittels, F., *Sigmund Freud, His Personality, His Teaching, and His School.* Allen and Unwin. 1924.

magi of Vienna. It is easier to dismiss the Unconscious than to grapple with it. Little work has yet been done upon the crucial matter of the origin of the censor and of inhibitions in general. The Freudians have thrown the spotlight upon the repressions by the censor of certain natural impulses, implying that the former is somehow artificial and superposed. But if it can be shown that the censor is man's natural adaptation to a situation brought about by his gregarious impulses; we shall find ourselves facing a conflict between two sets of natural driving forces, both deeply seated in the Unconscious, the one making for self-aggrandizement and the other making for society. To repress the selfish natural egoisms of sex, say the Freudians, is to generate disastrous complexes. But to repress the natural tabus of society may also lead to complexes. We have changed masters, but we have not thereby guaranteed our mental health and happiness.

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UNION COLLEGE.

JOURNALS AND NEW BOOKS

REVUE DE PHILOSOPHIE. 25 Année, 5. Les notions premières des mathématiques et la réalité: *F. Warrain.* L'existence de Dieu: *N. Maurice Denis-Boulet.* Essai de synthèse des cinq preuves thomistes de l'existence de Dieu autour des premiers principes de l'être: *R. Dulac.* M. L. Rougier contre la scolastique et le thomisme: *F. X. Maquart.*

HARVARD THEOLOGICAL REVIEW. XVIII, 4. The Norwegian Quakers of 1825: *H. J. Cadbury.* Religious Life in Japan: I. Family Ancestor Worship. II. The Revival of Japanese Buddhism. III. A Modern Buddhist University. IV. Selected Bibliography for Japanese Buddhism: *J. T. Addison.* Hebrew and Egyptian Apocalyptic Literature: *C. C. McCown.*

AUSTRALASIAN JOURNAL OF PSYCHOLOGY AND PHILOSOPHY. III, 4. The National Institute of Industrial Psychology: *G. H. Miles.* Freud's Psychoanalytic Theory of Taboos of the Dead: *R. F. A. Hoernlé.* Economic Aspects of Population: *R. C. Mills.* Troeltsch's Philosophy of History: *K. T. Henderson.* Changes in Christian Thought: *V. Macchioro.* Great Thinkers: (2) Bergson: *J. A. Gunn.* Discussion (1) Sacrifice: *T. Jasper.* (2) Examination of Immigrants: *P. C. Campbell.* Report: Industrial Psychology—A Short Bibliography: *R. Simmat.*

PSYCHOLOGICAL REVIEW. Vol. 33, 1. The Problem of Inhibition: *Raymond Dodge.* Is the Cerebrum the Seat of Thinking?: *J. F. Dashiell.* The Function of the Emotions: *H. H. Britan.*

The Development of Behavior in Vertebrates Experimentally Removed from the Influence of External Stimulation: *Leonard Carmichael.* Dr. Watson's Theory of Developmental Capacity: Criticisms and Interpretations: *G. U. Cleeton.* Some Reasons for Koffka's and Thorndike's Opposing Views in Regard to Animal Intelligence: *N. V. Scheidemann.* The Nature of the Complex as Compared with the Sentiment: *W. S. Taylor.*

RIVISTA DI FILOSOFIA. XVI, 4. Il problema dell'errore nella filosofia di Rosmini: *A. Levi.* Lineamenti di una sistematica degli studi religiosi: *A. Banfi.*

REVUE DER MÉTAPHYSIQUE ET DE MORALE. 32e Année, 4. Le pluralisme de Renouvier: *G. Séailles.* Observations sur l'idee de valeur considérée dans ses rapports avec la société: *J. Renauld.* L'Économie politique, science statistique: *J. Rueff.* La généralisation mathématique: *P. Césari.* La pensée religieuse de Descartes: *E. Gilson.* L'École unique: *F. Buisson.*

SCIENTIA. XXXIX, CLXV–1. Il Sole è una stella pulsante?: *G. Armellini.* Ueber die letzten Fortschritte der Atomphysik: *A. Sommerfeld.* Les manifestations finalistes de la vie. Ve et VIe Partie: Finalisme du comportement des organismes inférieurs et finalisme des réflexes et des instincts: *E. Rignano.* International Free Trade in Capital: *J. Viner.*

MIND. XXXV, 137. The Foundations of Probability: *R. H. Nisbet.* Distinction and Purpose: *Alfred Sidgwick.* The Genesis of Appearances: I. Distance and Magnitude: *C. A. Strong.* Vico's New Science of Humanity (I): *T. Whittaker.*

ANNALEN DER PHILOSOPHIE. Band V, Heft 5. Versuch einer Lösung des Substanzproblems auf Grund der Gestalttheorie: *Ch. v. Liechtenstern.* "Die skeptischen Ärzte": *W. Gent.* Deutsche Einflüsse in der neuen englishchen Philosophie: *Else Wentscher.* Zum modernen Platonismus: *Walter Del-Negro.* Bemerkungen zu Hans Reichenbachs Entgegnung: *O. Brühlmann.*

REVUE PHILOSOPHIQUE. LIe Année, Nos. 1 et 2. Memento mori (A propos de la théorie de la connaissance d'Edmond Husserl): *L. Chestov.* Relativité et relativisme: *A. Metz.* La nature de l'expérience d'après James Ward: *E. Leroux.*

JOURNAL DE PSYCHOLOGIE. XXIIe Année, No. 10. Le raisonnement et l'activité intentionnelle de l'esprit: *J. Segond.* La raison dans la crise de doute religieux: *R. Guyader.* Remarques sur la psychologie de la réclame: *M. Igert.*

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Gilbert, Allan H.: Dante's Conception of Justice. (Duke University Publications.) Durham: Duke University Press. 1925. v + 244 pp. $2.50.

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Singer, Edgar A., Jr.: Fool's Advice. New York: Henry Holt & Co. 1925. vi + 194 pp. (A collection of addresses and reviews including the following: The Monasticism of Mr. Knox; Fool's Advice; Mastery and Service; Of College Spirit and Other Spirits; "Death of the Western World" and "The Martyrdom of Man"; King of Paris; A Parable; George Stuart Fullerton.)

Tarozzi, Giuseppe: Nozioni di Psicologie. Con Preliminari Filosofici. Bologna: Nicola Zanichelli. viii + 165 pp.

Tarozzi, Giuseppe: Problemi Filosofici. Conoscenza—Morale—Estetica—Religione. Bologna: Nicola Zanichelli. 142 pp. L 9.50.

Among reprints recently received we call attention to the following: G. T. W. Patrick: "Social Morale." Reprinted from *American Journal of Sociology,* March, 1925, with revisions. C. J. Ducasse: "A Liberalistic View of Truth." Reprinted from *Philosophical Review,* XXXIV, 6. Ralph W. Nelson: "A Behavioristic Approach to the Christian Idea of God." Reprinted from *Culver-Stockton Quarterly,* Vol. I, Nos. 3 & 4. George Boas: "Some Presuppositions of Greek Philosophy." *The Classical Weekly,* XIX, 11. Horace L. Friess: "Literaturbericht uber Heutige Philosophie in den Vereinigten Staaten." Reprinted from *"Logos," Internationale Zeitschrift fur Philosophie der Kultur,* Band XIV, Heft 2/3.

NOTES AND NEWS

Dr. Alexander Meiklejohn has accepted a call to the Brittingham Professorship of Philosophy in the University of Wisconsin, and will enter upon his new duties the second semester of this academic year. The chair he thus takes is a new one, supported by part of the income from a bequest by the late Thomas E. Brittingham, formerly a Regent of the University. Dr. Meiklejohn will give courses for undergraduates and also in the Graduate School, but details have not yet been arranged. The work during his first semester will be in courses already announced since his acceptance came after the final publication of the University Time-Table for the Second Semester.